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from the Authors

THE NATURE OF VARIOUS SUBSTANCES FORMED IN  
DISCHARGED FROM THE UTERUS AND VAGINA.

BY

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Fig. 2.



Fig. 1.



Fig. 3.



Fig. 4.



Fig. 5.

ON THE NATURE OF VARIOUS SUBSTANCES FORMED IN OR  
DISCHARGED FROM THE UTERUS AND VAGINA.

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No. I.—*On Exfoliation of the Epithelial Coat of the Vagina,  
producing Casts of that Canal; with Remarks on the true  
Form of the Vagina.*

PLATE XII.

FROM no organ in the human body probably are substances of such various kinds expelled as from the uterus and vagina. These, besides the natural products of conception, include various abnormal substances, the result of aberrant or arrested gestation, as well as outgrowths from and degenerations of the proper tissues of these organs, occurring quite independently of pregnancy. It will suffice to mention the substances commonly termed polypi, moles, hydatids, and dysmenorrhœal membranes as examples.

Modern investigations, especially with the aid of the microscope, have acquainted us with the true nature of some of these; but others have been little if at all examined, and there are probably none which will not well repay carefully repeated observation.

Of the less examined substances, and of those which appear to have been not yet investigated, I propose to give an account, so far as these have fallen under my observation; selecting for the subject of the first of a series of papers, certain products of the vagina, which have probably hitherto been confounded with substances of uterine origin.

In cases of dysmenorrhœa, as is now well known, certain portions, or sometimes the whole of the natural lining of the uterus, may be shed in the form of a dysmenorrhœal membrane. The identity of these membranes with the mucous lining of the uterus, as well as with the decidua formed in early pregnancy, does not admit of dispute; and it is probable that a knowledge of this fact has led to the supposition, that all apparently membranous substances discharged under such circumstances, when not consisting of coagula or products of conception, are of this nature; but I have satisfied myself that some of these are not only materially different in structure from dysmenorrhœal membranes, but are not even of uterine origin.

This is the case with the three examples selected for the subject of the present communication.

The first occurred several years ago, in the case of a lady who came under my care for occasional attacks of dysmenorrhœa.



Learning that she sometimes passed membranes I procured one of these, and examined it carefully under fluid. The substance expelled (plate XII, fig. 4), consisted of a thin double layer of a somewhat slight yet tough and parchment-like membrane, of an opake white colour, and smooth almost lustrous or pearly surface. It appeared at first to be a cast of the flattened interspace between the uterine walls which constitutes the cavity of that organ, and exhibited very much of the triangular form of the uterus. The two membranous layers of which it was composed were in close apposition, and were bounded by a peculiarly sharp, thin border, like the marginal folding of the uncut pages of a book.

Yet, supposing this to have been ejected from the uterus, there were still many conditions irreconcilable with such an hypothesis. The size of the entire cast, which exhibited the triangular outline of the uterus, was more considerable than the cavity of that organ in the usual unimpregnated state. The angles that should correspond with the points of entrance of the Fallopian tubes shewed not the slightest trace of an aperture, and nowhere was there any of that cribriform appearance, produced by the pores of the uterine glands, which is so characteristically shewn upon the inner surface of true dysmenorrhœal membranes, while the outer surface was not rough, but smooth and lustrous. The whole was found, upon microscopic examination, to consist of broad flattened nucleated cells of pavement-epithelium, and was entirely destitute of the histological characters of the uterine mucous membrane.

The example, figs. 1 and 2, Plate XII, representing a preparation in the Anatomical Museum of King's College, gave me the first clue to the true nature of these substances. The preparation is entitled, "False Membrane from the Uterus." Like the former example, it consists of a sheath of dense opake epithelium, but the outer surface, instead of being smooth, is indented everywhere, so as to form numerous pits and depressions (fig. 1), running in oblique lines, and exactly representing the course of the vaginal rugæ. When the preparation is laid open, and viewed from within, (fig. 2), the furrows upon the reverse surface are seen to be converted into rugæ, having the ordinary arrangement of the columnæ rugarum upon the inner surface of the vagina. This specimen has more of the cylindrical figure than the former one, and at its upper end is a depression corresponding with the cervix uteri.

The chief differences between this and the former specimen are, that the cast is here evidently that of a narrower and more tubular canal, and exhibits the rugæ which are wanting in the former: differences which I have no doubt depend upon the

circumstance that the one is the cast of the vagina from an unmarried\* and the other from a married person, in whom the surface of the vagina had become smooth by unfolding and obliteration of the rugæ.

A third example, (fig. 3), presented to me about eighteen months ago, by Mr. Henry Willington, of Brompton, has completely removed all doubts from my mind as to the true nature and source of these substances. As the history of this case is important I give it in Mr. Willington's words.

"The 'mole' was passed by a married lady, at a menstrual period. She has borne three children; the youngest  $4\frac{1}{2}$  years old. She was, when I first was called to attend her, the subject of severe pain, with sickness, at the menstrual periods, for which no relief had been afforded, and lately only, 'say four months before the passage of the mole,' she asked my aid. A few days previously to the menstrual period immediately before the one when the 'mole' was passed she consulted me for a fulness at the anus, and great uneasiness in sitting down; accompanied with a peculiar movement of crawling in the vagina, 'up in her inside,' to use her own words. The sensation was intolerable, only relieved by an injection of Goulard water. The relief was complete for some hours. Not much notice was taken of this, until the bearing down and peculiar sensation came on again at the next menstrual period, and was described as a 'peculiarly crawling sensation.' An hour after I left the patient, the proper menstrual discharge came on, and the mole was found in the linen, and was felt to pass the vagina. There was no hæmorrhage, nor increase of the flux, nor anything else that followed; nor in the three subsequent periods. The painful character of the menstruation is now much altered, and no drugs are now taken for it."

This specimen, represented in fig. 3, is in some respects more interesting than either of the two former. Its surface is smooth and shining like the first (fig. 4), and has the same dense, white, parchment appearance. It possesses the cylindrical character of the second specimen, and at the same time exhibits at its upper extremity, in a marked manner, that peculiar crescentic border, perfectly destitute of any aperture at the apparent seat of the Fallopian tube (if this were a cast of the uterus), which was so puzzling a feature in the first specimen, (fig. 4). There is here also, as in the other examples, an entire absence of the eribriform markings and soft fleshy texture

\* Dr. Watson, by whom this preparation was presented to King's College, has since informed me that the young woman from whom this substance was passed, was then a patient under his care in Middlesex Hospital, suffering from dysmenorrhœa.



characteristic of ordinary dysmenorrhœal membranes. Like the other specimens this cast consists of nothing but tessellated epithelium.

But the most important and interesting feature is observed in the upper part of this specimen (fig. 3). Here is seen a cup-like depression, having in its centre a transverse cleft, exactly corresponding in size and position with the two lips of the cervix, separated by the os uteri. So that in this case, as well as in that represented by figs. 1 and 2, not only the entire epithelial lining of the vagina, but that portion of epithelium also which covers the part of the cervix uteri that projects into the vagina, commonly termed the vaginal portion, has been exfoliated and expelled in one mass.

It is also interesting to observe that this process of desquamation has not in some of these cases been limited to a single act of exfoliation, but has been evidently repeated at intervals; for in two of the instances here given distinct traces of a second set of membranes were found enclosed within the first; and this fact illustrates, in a remarkable manner, the statement made in the history of the last case, namely, that the "peculiar crawling sensation" experienced in the first attack, which was relieved by vaginal injections, came on again at the next menstrual period, when the two casts were expelled, one contained within the other.

The specimens here described are instructive in another and different point of view, as displaying the real form of the vagina, when in its ordinary state of vacuity and collapse. Being actual casts of that canal they may help to correct the conventional notions of its form which the ordinary representations in obstetric and other works are apt to give. For the vagina is not in its normal state an intestiniform tube of four or five inches in length, which is probably the general notion of it, although, from its great elasticity and capability of both elongation and lateral distention, it may be made to take various forms, so that it adapts itself alike to the ordinary tubular speculum and to almost any form of pessary, whether globular, oval, or ellipsoidal. In spirit preparations, also, as found in anatomical museums, an unnatural form is often given to the tube by distention of it before mounting: but if the vagina is examined *in situ*, just as Kohlrausch has represented it in his admirable sectional view of the female pelvis and its contents, of their natural size,\* it will be found to be a short flattened canal, the

\* Zur Anatomie und Physiologie der Beckenorgane, von Dr. O. Kohlrausch. Leipzig, 1854. This is the only view of the female pelvic viscera with which I am acquainted giving an accurate idea of the actual form and dimensions of the vagina.



anterior and posterior walls of which are in mutual contact; measured along the anterior wall from the median tubercle of the vaginal orifice to the margin of the anterior lip of the cervix uteri it commonly does not exceed *two*, or, at the utmost, *two and a half inches*, while the length of the posterior wall, from the hymen, or the entrance of the canal, to the extremity of the fornix, where the peculiar crescentic fold occurs, of which I have just given a description, does not ordinarily exceed *three inches*. The width ranges from one inch to an inch and a quarter, the broadest part being at the upper recess or fornix. The upper wall is shorter than the lower or posterior one, because the cervix uteri is let into it in a peculiar manner, close to its extremity, exactly in the position shewn in the epithelial cast, fig. 3.

I believe that a knowledge of the several conditions under which exfoliation of the vaginal epithelium occurs will be found to have an important practical bearing upon many of those abnormal conditions, not only of the vagina, but also of the cervix and os uteri, which so commonly fall under the notice of practitioners, and are accompanied often by so much local and constitutional irritation and disturbance.

The vagina deprived of its epithelium may be compared to the red and raw tongue of a person suffering from gastric and intestinal irritation. And it is probable that the extreme sensitiveness of the vaginal mucous membrane, which is so prominent and distressing a feature in erythematous conditions of this canal, is as much dependent upon an imperfect covering of the papillæ, occasioned by loss of their external epithelium, as it is upon a direct heightening of the sensibility of these structures.

But the amount of suffering which accompanies loss of the vaginal epithelium, or contrariwise the absence of pain and soreness, will depend in a great measure upon the slowness or rapidity with which the epithelium is renewed. If an entire new epithelium is formed before the old one is expelled, just as after certain eruptive fevers, scarlatina for example, a new cuticle is formed underneath that which is in process of exfoliation, then the accompanying symptoms will consist rather of itching and irritation, such as occurred in a marked manner in the third case here related; while in cases where the epithelium is shed in detached fragments, and is very slowly renewed, the local pain and smarting will usually be severe, and will continue until a new epithelium of sufficient density has been constructed, and it is principally to the favouring of this process that topical remedies should be in these cases directed.

